

APPENDIX B

Review of the Experiences of Other States With SBC-Funded EE&RE Programs

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This Appendix summarizes the experience and lessons learned in selected states that have SBC-funded EE&RE programs and discusses related public benefit issues and the implications of these for the CRA/SBC program in New Jersey. The summary includes:

- An review of the states in terms of the legislative/regulatory status and background of electric utility restructuring
- An analysis of the scope, funding and duration of SBC-funded programs
- Discussion of public benefit-related policies, such as renewable portfolio standards and environmental disclosure requirements.
- Discussion of the implications for New Jersey of the experiences of other states

Section I

Electric Utility Restructuring in the States

The National Energy Policy Act of 1992 and FERC Orders No. 888 and 889 facilitated the movement toward deregulated wholesale utility electricity sales and purchases in the U.S. However, a federal electric restructuring law has not been passed, and the decision on whether to restructure the electric utility industry remains a state decision.

The first states to restructure their electricity industries (California, New Hampshire, Pennsylvania, and Rhode Island) passed legislation in 1996, and over the next four years, nearly half of the states adopted a restructuring policy. However, by mid-2000, energy shortages and rapidly increasing electricity prices experienced by California (which implemented electric utility restructuring in 1998) gave electric restructuring a great deal of negative national attention. Although most states have at least considered restructuring, many states have placed further movement in that direction on hold. At present, states can be grouped into the following categories:

- In 23 states and the District of Columbia, a restructuring law has been passed: Arizona,¹ Arkansas, California, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Michigan, Montana, Nevada, New Hampshire,

¹In Arizona, restructuring legislation was passed for public electric utilities only. The investor-owned utilities were deregulated through Commission orders that were codified into law.

New Jersey, New Mexico, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, and West Virginia.²

- In one state -- New York, a PSC restructuring order has been issued without legislation and the utilities have filed settlement agreements describing how restructuring will be implemented.
- In two states -- Vermont and Wisconsin, there are no final restructuring laws or commission orders, but there has been state legislation to implement a statewide public benefits program.
- In the remaining 24 states, restructuring is being debated.

Rationale For Alternative Funding Mechanisms For Public benefit Programs

Utility ratepayers have historically funded a variety of public benefit activities, including EE and DSM programs designed to reduce energy consumption, EE&RE R&D programs, financial aid programs for low-income customers, incentive programs for RE technologies, and environmental programs. In the regulated utility environment, these ratepayer-funded programs were often managed by utilities with PUC oversight.

As utilities began to anticipate competition in the electric industry in the mid-1990s, many of these programs became increasingly vulnerable, and utilities became concerned that paying for such programs would increase their rates and put them at a disadvantage relative to competitive suppliers. In addition, if traditional rate of return regulation and integrated resource planning were to be abandoned, it would become economically advantageous for most utilities to sell more electricity rather than reduce consumption through EE&RE programs. Together, these factors resulted in a substantial decline in utility energy efficiency/DSM program activity. Whereas in 1992, utility spending on energy efficiency programs was forecast to increase by over 50 percent from 1994 to 1998, actual spending decreased by 50 percent from 1994 to 1998. Similarly, electric utility R&D expenditures also declined dramatically by the late 1990s. The risk that these “public benefits” of a regulated electricity system would be lost in the move to competition has been widely recognized in those states that have thus far proceeded to implement electric restructuring. The policies that have been adopted to support public benefit programs in these active states, and the funding levels for the programs, are summarized in Table 1.

²In many of these states, restructuring has already been fully or partially implemented. However, in some states that passed restructuring with a longer timetable for implementation, there currently are discussions regarding a possible delay or reversal of restructuring.

Thus far, 23 states have addressed public benefit programs in legislation and/or regulatory decisions: Arizona, California, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, West Virginia, and Wisconsin.

Table 1
Summary of State System Benefit Charge Policies and Funding Levels

Arizona	In December 96 the ACC ordered retail competition beginning in Jan 99 and completed Jan 03. Later delayed to begin in 2001. ACC rule requires SBC for LI, EE&RE. Funding determined in individual utility cases. Also a separate charge for an Environmental Portfolio Standard" (see RE). Also, EE may be shifted into RE.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$	TBD	8.0	3.9	16.0	28.0	ACC rule calls for 0.2% by 2001, up to 1.1% by 2007. Half must be solar elect.	Fuel mix and emissions are required by ACC rule
		mills/kWh	TBD	0.27	0.13	0.54	0.94		
		%rev.	TBD	0.3	0.2	0.6	1.0		
California	In Sept.1996, AB1890 signed into law, with full retail access Apr98. A 4-yr. SBC was created using a non-bypassable wires charge. In Aug00 the SBC got 10-yr extension, with inflation adjustment. Table shows just the 4 large IOUs. Small IOUs and muni's are also spending over \$100 million/yr. on pub. benefits. (new additional \$400 million for EE pledged by state also not included in table)		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$	62.5	228.0	100.0	135.0	525+	none	Yes. A "Power content label" is required for generation mix.
		mills/kWh	0.4	1.3	0.5	0.8	3.0		
		%rev.	0.4	1.3	0.5	0.8	3.0		
Connecticut	In April 1998 Public Act 98-28 was signed into law Phases in retail access during 2000. It funds EE, RE, and LI. RE ramps up over time, average is in table. Support for R&D is imbedded in the RE programs. Funds are collected through a non-bypassable wires charge.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$	in RE	87.0	8.7	22.0	117.7	Two tier, limits hydro starting at 6% and escalating to 13% by the year 2009.	Included in bill without specifics.
		mills/kWh	in RE	3.0	0.3	0.75	4.00		
		%rev.	in RE	3.0	0.3	0.75	4.00		
		admin.	TBD	utility	utility	Utility			
			CEC	utility	CPUC	CEC			
			EE & RE	collab.	DPUC	St. Auth.			

Delaware	Restructuring Act signed I March 1999. Has two SBCs: 0.178 mills/kWh for EE "incentives" programs, overseen by DE Economic Development. Office, 0.085 mills/kWh for LI bill assistance. & EE, overseen by Dept of Health & Social Services. An additional \$250,000 from rates is to go to customer education, esp. regarding RE.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		1.5	0.8	0.3	2.6	none	Not required. Law says commission "may" promulgate rules.
		mills/kWh		0.18	0.1	0.03	0.3		
		%rev.		0.3	0.15	0.05	0.5		
District of Columbia	In May 2000 Congress passed restructuring bill for D.C. Includes a "Reliable Energy Trust Fund". To be funded by a non-bypassable charge of up to 0.8 mills/kWh). Covers EE, RE and LI. To be administered by the local District government. As of Oct. 2001, charge is 0.21 mills with further allocation TBD.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		TBD	TBD	TBD	8.0	Commission Working Group is examining the issue.	Disclosure of fuel mix is required. To be reported every 6 months.
		mills/kWh		TBD	TBD	TBD	0.8		
		%rev.		TBD	TBD	TBD	1.0		
Illinois	InDec97, PA 90-561 was signed. It provides funding for EE, RE and LI (although EE&RE are at low levels), using non-bypassable flat monthly charges on customer bills, ("mills/kWh" equiv. Includes \$ from gas & electric.) Also, one-time ComEd \$250 million Clean Energy Trust fund OK's by legislation May 99 (not in table).		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		3.0	75.0	5.0	83.0	none	All electricity retailers would be required to disclose generation mix and emissions
		mills/kWh		0.03	0.6	0.04	0.7		
		%rev.		0.04	0.8	0.05	0.9		
		admin.		DCCA					

Maine	In May97, a state restructuring law was passed. The PUC has proposed, and legislature has authorized up to approx. \$17 million/yr. For EE via statewide charge in distribution rates (equiv. To max. of 1.5 mills/kWh). State Planning Office will oversee. Original law also requires LI asst. funding as shown. R&D is voluntary funding		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		17.2	5.5		22.7	30% starting May00. Limited to facilities of 100-MW or less	Yes. Fuel mix and emissions disclosure is required
		mills/kWh		1.5	0.8		2.3		
		%rev.		1.5	0.5		2.0		
Maryland	Restructuring Law signed in April 1999. Includes \$34 million/yr. Tax funded "Universal Service Fund" for bill assist and EE for LI customers. (Table shows mills/kWh and % rev. equiv.) In addition, 2 of state's 3 largest utilities agreed in settlements to have up to 1 mill/kWh Res. SBC for EE, but thus far have not implemented anything.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		TBD	34.0		34.0+	PSC to conduct a feasibility study of an RPS and report by 2/1/2000.	Yes. Fuel mix and emissions disclosure is required
		mills/kWh		TBD	0.6		0.6+		
		%rev.		TBD	0.9		0.9+		
Massachusetts	In Nov97 comprehensive legislation was signed brining retail access to all customers in 1998. Includes a non-bypassable wire charge for EE, RE and LI. Amounts ramp up for RE and down for EE. Averages shown in table. LI must get at least .25 mills of the EE SBC. (Note: RE excludes .25 mills/kWh for MSW).		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		130.0	incl.	30.0	160.0	Requires a new 1% increment by 2003, 4% more by 2009, 1%/yr. Thereafter	Fuel mix and emissions disclosure is required. Member N.E. Disclosure Project
		mills/kWh		3.00	in	0.7	3.7		
		%rev.		3.00	EE	0.7	3.7		
		admin.		utility	utility	MTPC			

Michigan	Restructuring law (PA 141) passed in 2000. The bill authorized creation of a "low income and energy efficiency fund", to be funded through savings from utility securitization. The MPSC is developing a process for distributing funds and will determine allocations to LI and EE projects. Funding is estimated to be \$50 million/year for 6 years.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		TBD	TBD		50.0	none	Yes. Fuel mix and emissions disclosure is required
		mills/kWh		TBD	TBD		0.5		
		%rev.		TBD	TBD		0.7		
		admin.		state	state				
Montana	In May97, electric utility restructuring was signed into law. Retail access began July98 and is scheduled to be completed by July02. Using EE&RE funds for R&D is approved by the new statute. Funds will be collected using a "universal system benefit charge." LI must be at least 17% of total.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		8.9	3.3	1.8	14.0	none	The PSC has proposed disclosure. Hearings are being held.
		mills/kWh		0.7	0.26	0.14	1.1		
		%rev.		1.5	0.6	0.3	2.4		
		admin.	utility programs						
Nevada	In July97, electric utility restructuring was passed. Retail access was scheduled for March 2000, but delayed due to CA Problems. Public benefit programs were encouraged but not specifically funded. In 2001, AB 369 halted restructuring. RPS and disclosure passed separately in 2001. EE not addressed yet.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$	TBD	TBD	TBD	TBD	TBD	SB 372 passed in 2001. Requires 5% by 2003, 15% by 2013. Half of total must be solar	AB 197 of 2001 requires fuel mix and emissions info, twice a year.
		mills/kWh	TBD	TBD	TBD	TBD	TBD		
		%rev.	TBD	TBD	TBD	TBD	TBD		
		admin.							

New Hampshire	In May96, NHRSA was passed into law. Retail access was to be implemented in Jan98, but conflicts over stranded costs delayed the process. The statute authorized funding for R&D, EE, RE, and LI, but the initial PUC plan only funded LI. In Jun00, SB472 set an SBC of 2.0 mills/kWh. In Nov00 The PUC allocated 1.2 mills to LI and 0.8 mills to EE..		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		6.9	10.4		17.3	none	Participants in the New England Disclosure Project.
		mills/kWh		0.8	1.2		2.0		
		%rev.		0.7	1.0		1.7		
New Jersey	Restructuring law passed in Jan 99. Requires SBC funding for EE/RE at same level as existing DSM costs (approx. \$235 million/yr.) Full SBC is 3.6 mills. Half would pay for costs from prior years, half for new programs. 25% of new must be Re. Numbers in table are new programs only set BPU order Mar01. LI separately funded at prior levels.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		89.5	10.1	30.0	129+	By Jan 01 to be 0.5% from "Class 1," by Jan 06 1.0%. Ramps up to 4% by 2012.	Required for fuel mix and emissions.
		mills/kWh		1.35	0.16	0.45	1.96		
		%rev.		1.35	0.15	0.45	1.95		
New Mexico	Legislation to restructure (SB 428) was signed in April 1999. Possible delay being discussed. An SBC of 0.3 mills/kWh is required, to fund consumer education, LI energy efficiency, and renewable energy promotion. Numbers in table are specified min. or max. figures. Funds to be administered by the state Dept. of Environment.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$			0.5+	4.0	5.0+	Suppliers required to offer renewables, but no portfolio std. Is required	Required for fuel mix and emissions.
		mills/kWh			incl.	incl.	0.3		
		%rev.			0.1	0.4	0.5		
New Mexico		admin.			state	state			

New York	In May96, the PSC issued Order 96-12, requiring all IOUs to file restructuring plans. A July98 Order set 478 million/year for an SBC, administered by NYSERDA. In Jan01 the PSC raised the SBC to \$150 million/yr. and extended it for 5 years. (Table shows allocation minus 10% held open. R&D incl. \$14 million/yr. for Re. Table doesn't include. \$100 million/yr. EE by Power Authorities.)		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$	26.0	83.0	27.0	in R&D	150.0	none	Required by PSC Order dated 12/15/98. Working on design to start in 2000.
		mills/kWh	0.26	0.83	0.27		1.5		
		%rev.	0.23	0.72	0.24		1.3		
Ohio	Restructuring Law (SB3) signed in July 1999. Includes an SBC for up to \$15 million/yr. For an "Energy Efficiency Revolving Loan Fund" admin. By the state, plus a "Universal Service Rider" for LI bill asst. and efficiency. LI in table based on recent historical spending (EE does not incl. additional agreements by individual utilities.)		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		15.0	100.0		115.0	none	Yes. Fuel mix and emissions disclosure is required
		mills/kWh		0.1	0.7		0.8		
		%rev.		0.15	1.1		1.25		
Oregon	Law passed in July 1999. Includes a "public purposed charge" to fund EE, RI and LI, equiv. To 3% of total IOU revenues (approx. \$50 million). Requires 63% of funds for EE (incl. MT) and 19% to RE. PUC to develop rules. LI gets 18% of PPC for weatherization, plus extra \$10 million for bill payment assistance (incl. in table totals).		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		31.5	19.0	9.5	60.0	None. (a "green rate" option is required, however)	Yes. Fuel mix and emissions disclosure is required
		mills/kWh		1.0	0.6	0.30	1.9		
		%rev.		1.9	1.1	0.60	3.6		
		admin.		TBD	state	TBD			

Pennsylvania	In Dec96, a restructuring law was signed. Retail access to be phased-in over 2 yrs. Starting Jan99. Law requires EE and LI minimum funding at existing levels (10m and 26m). Exact levels determined in individual Utility cases have been higher than minimum. EE includes some renewables. LI includes 20% for efficiency		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		11.0	85.0	2.0	98.0	Being addressed in individual Util. Cases. Also, bidders for "last resort" service need 0.2%	Yes. Fuel mix and emissions required (but not emissions data).
		mills/kWh		0.1	0.7	0.02	0.8		
		%rev.		0.1	0.9	0.02	1.0		
Rhode Island	Retail competition phased in by Jan98. The legislation required a minimum SBC of 2.3 mills per kWh for EE&RE Actual spending plans exceeded that. Some funding on R&D for "near commercialization" renewables. Low-income EE and rate discounts are funded in rates, not the SBC. In July 201, the 2.3 mills minimum SBC was extended for 5 more years.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		14.0	in rates	2.5	16.5	none	Participants of NE Disclosure Project.
		mills/kWh		2.1	in rates	0.5	2.6		
		%rev.		2.1	in rates	0.4	2.5		
Texas	Restructuring Law signed in June 1999. Requires utilities to administer EE programs to achieve savings equivalent to 10% of annual load growth by 2004. PUC has established rates and procedures. Est. total annual cost is \$80 million by 2003. Also a small SBC for customer education and LI assistance & 10% LI rate discount. (Has been set at statutory minimum .065 mills/kWh.)		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		80.0	157.0		237.0	Requires 2000 MW of new renewables by 2009. (Phase-in, 400 MW by 2003).	PUC required to develop rules to disclose environmental Impacts.
		mills/kWh		0.33	0.65		1.0		
		%rev.		0.55	1.10		1.65		
		admin.		utility	state				

Vermont	VT has not yet restructured, but in June 1999 S. 137 passed, giving PSB the authority to establish an SBC to fund statewide EE through a non-utility entity, in place of utility programs. \$17.5 million/yr. maximum. 5-year ramp-up budget was set in settlement, averages shown in table. *(in 1997, S62 passed Senate but not House.)		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$		13.1	TBD	TBD	TBD	S62 required 2-tier, existing (up to 15%) & emerging (up to 4%) by 2007.	S62 required price, mix, pollutants, EE notices, and terms. NE Disclosure Project
		mills/kWh		2.5	TBD	TBD	TBD		
		%rev.		2.6	TBD	TBD	TBD		
Wisconsin	Act 9 of 1999 passed Sept. 99 includes elec. Reliability provisions which designate the WI Dept. of Admin. As the state agency to design and implement public benefit programs. Industry restructuring has not yet been addressed. Totals in the table reflect best current estimate of funding levels when fully in place.		Details of SBC Funding					Renewables Portfolio Standard	Generation Disclosure
			R&D	EE	LI	RE	Total		
		Million \$	1.1	62.0	45.3	2.8	111.2	Requires 0.5% by 12/31/01. Increases to 2.2% by 12/31/11.	Not addressed.
		mills/kWh	0.0	1.2	0.92	0.07	2.2		
		%rev.	0.04	2.3	1.7	0.1	4.2		
		admin.	DOA	DOA	DOA	DOA			

TDB = to be decided

SBC funding amounts provided in the table are average annual funding levels.

Source: U.S. Energy Information Administration, Department of Energy, and the American Council for an Energy Efficient Economy.

Section II

SBC-Funded Public Benefit Programs

Public benefit programs do not have to be related directly to restructuring for, as a small per-kWh adder on retail electricity bills, the SBC funding mechanism can be largely independent of the structure of retail or wholesale electricity markets. Wisconsin, for example, has implemented both an SBC-funded renewable energy program and a renewables portfolio standard without opening its retail market to competition. As long as SBC fund administration resides with an entity that can operate equally well irrespective of market structure, there is no compelling reason that public purpose funding need depend on the status of deregulation or restructuring in the states.

Models in the states for providing energy-related social benefit programs may be ordered along a continuum from no intervention to broad government intervention:

- 1. No explicit funding provided. This leaves provision of public goods to the free market or, from another perspective, represents abandonment of these programs by utilities and government.
- 2. Utilities fund and administer the programs under the traditional regulatory case-by-case approach. This has been the historic approach, with each utility providing services under individual regulatory rate case review.
- 3. Utilities collect funds through a “tax” and use revenues to administer programs (as in Pennsylvania and California).
- 4. Utilities collect funds through a “tax” and turn revenues over to an outside entity for administration (This is the case for Vermont through the Vermont Energy Investment Corporation and has been proposed in Oregon.).
- 5. A general (non-utility) government tax is imposed on citizens with program administered by not-for-profit or for-profit organizations. (There are no existing cases in the United States.)

The general concept of a tax noted in models 3, 4, and 5 offers important advantages from an economic perspective. In addition to producing the needed revenues, tax options increase the price of the commodity, reduce its consumption, and reduce the

externalities associated with its production. Once this route is selected, the tax can either be imposed on the consumption (end use) or the production (generation) end. The latter offers some advantages for, on the generation end, the tax can be varied by fuel mix, with higher rates for the more polluting source fuels.

Taxing at the end use level requires decisions as to whether the tax should be imposed on a per-customer or per-kWh basis. A fixed charge per customer would result in smaller customers contributing a larger portion of their energy bill to SBC revenues. The arguments used for a fixed-charge approach are the administrative ease as well as its non-bypassable nature. Economic principles indicate that the funding of EE&RE programs should be based on a per-kWh charge in order to provide a price signal to end users. A reasonably computed charge on a per-kWh basis would lead to lower consumption, in addition to providing the revenues necessary to fund the programs.

State Restructuring and SBC Funding Efforts

Of those states that have implemented a funding mechanism, most have selected SBCs. Table 2 summarizes the status of restructuring efforts and SBCs in the states, and shows that 19 states apply broad-based, volumetric-based charges explicitly to classes of customers for the purpose of providing renewable, energy efficiency, or low-income programs. They may be called system benefit charges, social benefit charges, universal service funds, or public purpose charges. What they all represent is a clear departure from the traditional utility program funding approach in which program costs are recovered in individual rate case reviews.

Eight states have enacted non-SBC measures. Examination of the enabling statutes and orders indicates that they may be based on individual stipulations or on legislative language that sets a certain amount for funding but does not designate how it will be collected. These states typically use the funds to support across-the-board rate discounts for all or certain classes of customers, or use to continue support for existing public purpose programs (such as low-income energy assistance and weatherization).

Pending states are those in which legislation or commission decisions are still largely in the formative stage and, although there may be outstanding legislative or commission staff/working group reports, these are not part of a legislative bill/statute, or commission order. The “no activity” category includes states that have not begun active consideration of restructuring issues -- Georgia, Hawaii, Idaho, Kansas, Kentucky, Nebraska, South Dakota, and Tennessee.

Table 3 lists the states with SBCs. They include Connecticut, with a charge of 0.3 cents/kWh for energy conservation and load management, and New Hampshire, with the SBC designed to raise up to \$13.2 million with a flat amount per kWh (not more

than 5 mills) applied equally to all customer classes. Table 4 illustrates how the SBC funds are apportioned in the states among EE, RE, and low-income programs.

Table 2
Status of State Restructuring and System Benefit Charges

Restructuring Progress	Funding Mechanisms for Energy-Related Public Purpose Programs				
	SBC	Non-SBC	Pending	No Activity	Total
Restructuring legislation enacted	19	5	0	0	24
Comprehensive regulatory order issued	1	0	0	0	1
Commission or legislative investigation ongoing	2	0	16	0	18
No activity	0	0	0	8	8
Total	22	5	16	8	51
Percent	43%	10%	31%	16%	100%

Source: U.S. Energy Information Administration, Department of Energy and the American Council for an Energy-Efficient Economy.

Rationale for an SBC

The major rationale for states instituting an SBC is that the traditional rate-based approach to funding public benefit programs is not an option under deregulation. However, there are other compelling reasons as well:

- Current methods of assessing cost effectiveness compare demand- and supply-side options based on avoided-costs. If a kWh can be conserved for less money than it takes to produce it, its conservation is a prudent investment, and the comparison is made between the initial cost of installing energy-saving equipment and the present value of the avoided cost over the economic life of the installed equipment. However, avoided-cost figures are extremely volatile, and cost-of-service studies can produce radically different streams of avoided costs year-to-year. These costs are often based on demand forecasts and their projected impacts on when new capacity would be required. These forecasts can be influenced by political agendas, and the changing values make planning difficult.

Table 3
States with System Benefits Charges

State	System Benefit Charge Mechanism
Arizona	Funding to be determined on a per-utility basis
California	3.7 to 4.5 mills/kWh, depending on class schedule
Connecticut	0.3 cents/kWh for energy conservation and load management
Delaware	0.0095 cents/kWh for low income, and an additional 0.0095 for environmental
District of Columbia	0.8 mills/kWh, can increase to 2 mills/kWh in 4 years
Illinois	40 cents per residential service (electric and gas) account. For nonresidential accounts with less than 10 MW of peak demand in last calendar year, charge is \$4 per month for larger accounts.
Maine	0.05% of utility revenues
Maryland	up to 1 mill/kWh
Massachusetts	0.25 mills/kWh
Montana	2.4¢ of retail sales for period of 7/1/99 to 7/1/03 for energy conservation, renewable resources projects, and low-income energy assistance. Gas utilities have to contribute 0.42% of the utility's annual revenue for low-income energy bill assistance.
New Hampshire	Not more than 5 mills/kWh applied equally to all customer classes.
New Jersey	Charge imposed on all electric and gas customers.
New Mexico	0.03 cent per kWh on each public utility and distribution cooperative utility customer
New York	\$150 M/yr., for the next 4 years
Ohio	Universal service rider assessed on retail electric distribution rates
Oregon	3% of electric revenues to establish \$60 million dollar fund +\$10 million for low income customer payment programs.
Pennsylvania	0.2% of revenues for Low-Income Usage Reduction Program and 0.5% of revenues for Community Actions Programs.
Rhode Island	0.23 cents/kWh to all distribution customers
Texas	Up to 50 cents/MWh; can increase to 65 cents
Vermont	Volumetric charge on distribution utility bill
West Virginia	0.3 mills/kWh
Wisconsin	3% or \$750/yr. (per customer), whichever is less.

Source: U.S. Energy Information Administration and the American Council for an Energy-Efficient Economy.



Table 4
Distribution of SBC Funds Among Programs in Different States

Total Fund		Energy Efficiency		Low Income		Renewable Energy	
State	Mills	State	Mills	State	Mills	State	Mills
New Jersey	3.76	New Jersey	3.15	New Hampshire	1.50	California	0.80
Connecticut	3.75 + ^a	Connecticut	3.00	Wisconsin	1.30	Connecticut	0.75
Massachusetts	3.70 +	Massachusetts	3.00	Ohio	0.70	Massachusetts	0.70
California	3.00 +	Vermont	2.50	Pennsylvania	0.70	Rhode Island	0.50
Wisconsin	2.90	Rhode Island	2.10	Illinois	0.60	New jersey	0.45
Rhode Island	2.60 +	Maine	1.50	Maryland	0.60	Oregon	0.30
Vermont	2.50 +	Wisconsin	1.50	Oregon	0.60	New Mexico	0.24 +
Maine	2.30	California	1.30 +	California	-/5-	Montana	-/14
New Hampshire	2.00 +	Oregon	1.00	Maine	0.50	Wisconsin	0.10
Dist. Of Columbi	2.00 -	Montana	0.70	Montana	0.26	Illinois	0.04
Oregon	1.90	New York	0.60 +	New Jersey	0.16	Delaware	0.03
Montana	1.10	Delaware	0.18	Delaware	0.10	New York	0.03
Pennsylvania	0.82	Ohio	0.10	New York	0.10	Pennsylvania	0.02
New York	0.80 +	Pennsylvania	0.10	Texas	0.07	Maine	Dona-Tions
Ohio	0.80	Illinois	0.03 +	New Mexico	0.03	Maine	Dona-Tions
Illinois	0.67 +	Arizona	TBD ^b	Massachusetts	Current	Arizona	TBD
Maryland	0.60 +	Dist. Of Columbia	TBD	Massachusetts	Levels	Dist. Of Columbia	TBD
Delaware	0.31	Maryland	TBD	Rhode Island	In rates	Nevada	TBD
New Mexico	0.30	New Hampshire	TBD	Arizona	TBD	Vermont	TBD
Texas	0.07 +	Nevada	TBD	Dist. Of Columbia	TBD		
Arizona	TBD	Texas	TBD	Connecticut	TBD		
Nevada	TBD			Nevada	TBD		
				Vermont	TBD		

^aA plus sign next to a value indicates that additional funding may be added due to administrative determinations or public utility programs. A minus sign next to a value indicates that funding will increase to this level but funding in earlier years will be lower.

^bTBD = to be decided.

Source: Kushler and Witte.

- There are significant startup costs to energy efficiency efforts: Programs take a long time to build the necessary infrastructure, and this requires a consistent funding mechanism.

- An SBC mechanism will likely require the use of a third-party administrator to allocate the collected revenues as optimally and equitably as possible. This third party will not face the same conflict-of-interest issues that utilities do.
- An SBC mechanism is likely to increase the effectiveness of the delivery of service by eliminating the redundant administrative functions across various utilities.
- An SBC mechanism will provide higher levels of continuous support for market transformation programs. As such, this mechanism will likely benefit more customers, capture more opportunities for energy conservation, remove more market barriers, and produce longer-lasting effects.
- Typically, an SBC is distributed on the basis of competitive bids. This process will encourage new business opportunities for businesses in the energy efficiency and renewable resource industries.

Section III

Public Benefit Policy Making

This section identifies the status of electric industry restructuring in the U.S. For those states that have taken action regarding restructuring, five specific areas of public benefit policymaking are examined:

- Energy R&D
- Energy efficiency programs
- Renewable energy
- Low-income programs
- Disclosure requirements (e.g., fuel mix, emissions, etc.).

The various policies that have been adopted to support public benefit programs in these states, and the funding levels for those programs, are summarized in Table 1.

Public Benefit Energy R&D Programs

Public benefit energy R&D is generally considered to be research and development with largely external benefits that cannot be captured in the near term by individual companies. This R&D can include the full range of research, development, and demonstration activities, and the concern is that competitive markets may not support the optimal level of these activities -- a concern that has been validated by the substantial decline in most utilities' funding of R&D programs since the inception of restructuring in the mid 1990s. Most of the policy debates regarding public benefit energy R&D and utility restructuring tend to focus on renewable energy, energy efficiency, and environmental programs.

Thus far, ten states have addressed public benefit energy R&D in utility restructuring and are in various stages of enacting and implementing public benefit energy R&D provisions. Each state's activity is summarized in Table 1, and can be categorized as:

- States with public benefit energy R&D programs funded by state legislation or commission order (including R&D addressed within other public benefit programs such as energy efficiency and renewable energy): Arizona, California, Connecticut, Massachusetts, Montana, New York, Rhode Island, and Wisconsin.
- States providing various means of unfunded support for public benefit energy R&D: Maine and Nevada.

Energy Efficiency Programs

Of the 24 states and the District of Columbia that have passed restructuring legislation or issued regulatory orders requiring restructuring, 17 states and the District of Columbia have created explicit provisions for supporting energy efficiency programs as a part of their restructuring process. In addition, two states (Vermont and Wisconsin) have passed legislation providing for substantial public benefits funding to support energy efficiency, even though they have not issued orders for full restructuring. Most programs are targeted toward at least maintaining historic energy efficiency spending levels, and the status of each state's activity can be categorized as:

- The 18 states with public benefits, energy efficiency programs under restructuring that are funded by law or commission order are: Arizona, California, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Montana, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, and Texas.
- Vermont and Wisconsin have not restructured but have passed statewide public benefits legislation to fund energy efficiency.

- Nevada provides various means of unfunded support for public benefit energy efficiency programs.
- Michigan, Oklahoma, and Virginia are assessing the implementation of public benefits programs.

Renewable Energy

There are two generic types of state-sponsored renewable energy activities:

- RE programs that provide direct funding for renewable energy projects and/or credits or refunds to customers for the purchase or use of existing or new RE technologies (e.g., biomass, solar, wind, geothermal, hydropower, biogas, municipal solid waste, etc.).
- Renewable portfolio standards that specify that a required percentage of electricity provided by a supplier be based on renewable energy. The RPS is usually included in a state's electric restructuring legislation but not funded through the SBC.

Renewable Energy Programs

Fifteen states and the District of Columbia provide funding to support renewable energy programs in their restructuring plans, and are in various stages of enacting and implementing renewable energy provisions. The states with renewable energy programs funded by state legislation or commission order are: Arizona, California, Connecticut, Delaware, District of Columbia, Illinois, Maryland, Massachusetts, Montana, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, and Wisconsin.

Renewable Portfolio Standard

Nine states and the District of Columbia include a renewable portfolio standard in their legislation, and are in various stages of enacting and implementing their RPS. The states with an RPS included in state legislation or commission order are: Arizona, Connecticut, District of Columbia, Maine, Massachusetts, Nevada, New Jersey, Pennsylvania, Texas, and Wisconsin.

Low-Income Programs

The historic role of low-income programs has been to provide bill payment assistance, weatherization programs, and energy efficient retrofits, and low-income customers may be at greater risk in a deregulated environment than under regulation. Thus far, the most common strategy for low-income program support has been using an SBC to fund



low-income energy efficiency and bill assistance programs. In addition, “supplier of last resort” and other rules regarding consumer protection have developed as protections for low-income customers in response to restructuring.

Twenty-one states and the District of Columbia are enacting and implementing electric utility restructuring-related low-income provisions, and the states with low-income programs funded by state legislation or commission order are: Arizona, California, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Montana, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, West Virginia, and Wisconsin. In addition, Michigan, Nevada, Oklahoma, and Virginia are considering the establishment of such programs.

Disclosure Requirements

Disclosure issues are concerned with giving customers the necessary information to make informed choices about the electricity they are purchasing in a competitive market. This typically includes reporting attributes of electricity generation and pricing including fuel mix, fuel emissions, kilowatt-hour price, price volatility, and contract terms.

Twenty-five states and the District of Columbia have either required disclosure or are considering such a policy. Several of these states have not yet restructured but are working on the disclosure issue. The states with disclosure policies included in state legislation or commission order are: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Illinois, Maine, Maryland, Massachusetts, Michigan, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, and West Virginia.

Key Decision Areas in EE&RE Public Benefits Policy

Although restructuring is a complex undertaking, and legislation/regulatory orders can be very detailed, it is possible to identify several key issues that were major subjects of debate in most of the states:

- Funding (i.e., the mechanism, sources, and the amount)
- Administration (who will administer and operate the programs)
- The duration of any policy/funding requirement.

These issues are summarized below.

Funding Mechanisms

The SBC is the most common approach to funding EE&RE public benefit programs. It is a non-bypassable charge on the distribution service (thus being “competitively neutral” because customers pay the charge no matter who their generation supplier is), usually expressed in mills per kWh. Fifteen states have adopted this type of approach.

Three states have used an approach where the funding is either embedded in rates or provided through a flat monthly fee, rather than a per kWh charge, and two states have adopted approaches that are somewhat unique:

- Illinois (in addition to a small requirement for utility funding of some state administered programs) has established a “Clean Energy Trust Fund” (funded with \$250 million from Commonwealth Edison as part of a larger agreement on restructuring-related issues) that will be used, in part, for EE&RE programs.
- Texas, in contrast to virtually every other state, did not establish a funding amount; rather, it set a requirement for utilities to achieve energy savings each year equivalent to 10 percent of projected load growth.

Funding Sources

One policy concern embedded within the broader issue of funding mechanisms is the question of whether all customers should pay to support these funds or if some customers or customer classes should be excluded. Large industrial customers and their advocate organizations have argued that they do not need or want these “public” programs and therefore should not be required to pay for them. Although the argument can be made that EE&RE programs benefit all customers in a number of ways, these large customers often have significant political influence and in some states have succeeded in achieving full or partial exemptions.

Three states have included preferential treatment for very large industrial customers (typically those in excess of 1 MW of demand) in their restructuring legislation:

- Montana provides for a smaller per kWh charge for customers of 1 MW demand or greater, and also allows for “credits” against that charge for documented self-spending on EE&RE projects.

- Oregon allows a similar partial credit for large customer (>1 MW) documented self-spending, and also has a special discounted per kWh charge for aluminum smelters.
- Vermont has a “C&I Customer Credit Program,” whereby large business customers that meet several conditions can receive a refund of up to 70 percent of the cost they would otherwise pay to support the statewide energy efficiency utility. This is based on the amount of documented “qualified” expenditures they make on energy efficiency improvements in their facilities.

In spite of these examples, the vast majority of states have required that EE&RE public benefit funding be derived from an equal per kWh charge applied to all customers.

Funding Amount

An important public policy issue is how the level of funding for EE&RE programs under these new public benefits approaches compares to historical utility DSM, EE, and RE spending. Analysis of this issue indicates that, with a few exceptions, states have tended to set their new EE&RE funding at a level comparable to recent experience, but significantly below peak utility spending levels of the early to mid-1990s. While many advocates prefer higher levels of funding, it appears that at least the policy direction has been stabilized, and research indicates that the cumulative effects of these public benefit funding mechanisms may have helped stop the decline in utility DSM, EE, and RE spending that has occurred since restructuring first began, and may have helped produce a small increase in national spending in recent years.

Administration

This important issue is discussed separately in Appendix C.

Funding Duration

Another key issue regarding public benefit EE&RE policies in the different states has been the length of time for which funding has been required and, here again, there has been a large degree of variability:

- Eleven states do not set any specific duration for the funding requirement, leaving it essentially open-ended
- Four states set a 10-year funding period
- Six states specify five years

- Two states set four years
- Two states set three years.

Some of the states that first began restructuring tended to specify shorter time periods (e.g., California four years, New York three years, etc.), whereas, more recently, states have tended to specify longer or open-ended periods. This may reflect an emerging recognition that transforming markets is not a simple or quick process. In addition, most of the states that set a specific time duration indicated that some type of review and determination of future policy would occur as the end of the initial period approached. This process has already begun in several states.

Another policy approach is that of the multi-state market transformation effort known as the Northwest Energy Efficiency Alliance (NEEA). Although its funding is not driven by state public benefit funds created under restructuring, it has had considerable success in implementing market transformation programs. A similar market transformation organization, the Northeast Energy Efficiency Partnership (NEEP), has also had some success in the Northeast, but its funding is more directly tied to state restructuring public benefit funds in that region.

Section IV

Lessons Learned

The lessons learned by other states with restructuring programs that involve SBCs and EE&RE initiatives can be used to assist program development in New Jersey. The major lessons learned are summarized below.

Policy formulation:

- It is useful to form coalitions, especially including business interests. It has been particularly helpful to include businesses that are directly involved in EE&RE program delivery (contractors, suppliers, etc.) to emphasize the positive impact on jobs and local economic activity.
- It is important to find a legislative and/or regulatory “champion” for the policy -- someone who will take ownership of the issue and work within the system to ensure that the policy remains intact through implementation.

- The debate should not focus primarily on costs. In particular, there is often a tendency to focus most attention on minimizing rates, thus ignoring the economic and other benefits resulting from EE&RE programs.
- Ensure that the legislative language is specific and clear, especially regarding the funding amount and mechanism, and that this mandate is adhered to throughout program implementation.
- Every state is unique, and there is no single solution for all situations in all states, although the varied experiences in other states can prove useful in New Jersey.
- Work with existing assets in New Jersey, and if some approaches and organizations have worked well, incorporate them into the policy approach -- this is especially relevant here, given the role in New Jersey of the Clean Energy Collaborative.
- Ensure that the final legislative language is correct. Details matter, especially in subsequent rulemaking and orders.

Designing the Approach:

- Establish a dedicated fund to support the public benefits, rather than relying on general revenues and/or annual appropriations. Clear, dedicated funding has been very important in most states.
- Programs take time to implement properly, especially market transformation. Sufficient time should be allowed for policies to work, and a number of analyses indicate that a 3- or 4-year time frame for public benefits funding may not be sufficient. This is of obvious relevance in New Jersey, where the EE&RE programs are initially funded for four years.
- Central statewide administration, or at least close coordination among different utilities in a state, is crucial for market transformation strategies.
- Regional (in addition to intra-state) cooperation for certain strategies must be considered, especially for programs like market transformation and renewable portfolio standards.

- An infrastructure and renewables energy industry must be developed if renewable mandates are to succeed. This is especially relevant, because, at present, there may be an inadequate infrastructure for renewable energy in New Jersey to meet the RE market transformation objectives desired.

Implementation:

- If programs are to be administered by an ISA rather than the utilities, it is important to select an organization with experience and demonstrated capability in this field. This will be much quicker and more effective than trying to create a new organization.
- In delivering programs, advantage should be taken of existing experienced delivery channels, while still allowing some opportunity for testing creative new approaches.
- All available program dollars should not be committed at the outset, and some flexibility should be retained to direct funds to worthwhile program ideas that emerge as experience unfolds -- e.g., program and budget flexibility is important.
- Use of multiparty collaboratives for program guidance and oversight can be an effective mechanism for avoiding litigation and other challenges and delays, and can be done in a reasonably efficient manner.

Additional lessons from the experience to date with public benefits can perhaps be best illustrated by briefly describing what appear to be some of the major mistakes or oversights that have thus far been identified in public benefit policy development.

The Stranded Cost Trap

In setting the level of public benefit funding for EE&RE, one issue faced by several states was the question of what to do with ongoing cost obligations from prior program activities, e.g., payments for savings from previously installed measures, such as under standard performance contracting programs. In some cases, these cost obligations were explicitly excluded from the new EE/RE charge (e.g., Oregon). In other cases, the new

EE&RE charge was set at a high enough level to assure sufficient funds for new programs as well as covering the cost obligations from prior programs -- this is the approach followed in New Jersey. However, several states have discovered that their SBCs will be almost entirely committed to pay for prior EE&RE program costs, rather than paying for those prior obligated costs in some other manner, such as including them stranded cost recovery.

The “Legislative Definition” Exclusion

As discussed above, the details of legislative and regulatory language are crucial. In a textbook example, one state passed an aggressive RPS but discovered that the fine print of the legislation exempted “default” (standard offer) service from the RPS. Since experience under restructuring has shown that most residential and small commercial customers have stayed on default service, the potential impact of the RPS would be largely negated.

The “Bureaucratic Roadblock”

In most states the legislature can create policy, but it is up to other agencies of government to implement the policy. In several states, the restructuring legislation contains favorable language “authorizing” an SBC for energy efficiency and renewable energy, but non-supportive regulatory commissions have not yet approved funding.

The “Procedural Gridlock”

Even without deliberate obstruction, the complexity of overlapping rules and procedural requirements can impede implementation. Several states have experienced administrative meltdowns, where overly complex processes and lack of coordination among different government entities have hindered the goals of statewide administration of the public benefit EE&RE funds.

Covert Obstruction and Hidden Agendas

In assessing the lessons learned from other states, it is important to keep in mind one additional finding: Some policy miscues are not always mistakes or oversights. In the political process, there are often powerful opponents to public benefits EE&RE funding (e.g., large industrial customers, independent electricity suppliers, sometimes the utilities themselves). In this context, one party’s oversight may be another party’s carefully conceived strategy for minimizing the costs and/or effectiveness of the public benefits policy. This opposition is likely to persist through implementation and evaluation of the EE&RE programs.

Section V

Selected State Examples

For many states that have adopted an SBC EE&RE public benefits policy it is too soon to fully assess program impacts and, as indicated in Table 1, in some states actual program implementation has either only recently begun or has not yet begun.³ However, there a number of states began their public benefit EE&RE programs several years ago and have had time to conduct initial impact assessments and evaluations. A brief examination of these experiences illustrates a number of important issues relevant to the situation in New Jersey.

California

California pioneered electric industry restructuring and the concept of public benefit funding. It was among the first states to pass comprehensive restructuring legislation and one of the first to create a specific non-bypassable wires charge to support EE&RE programs -- the state also included a wires charge to support other public benefits, including R&D and low-income programs.

California created an initial 4-year period for its “Public Goods Charge” (PGC) and specified a funding level for EE&RE that is the largest in the nation, with an average annual funding of approximately \$218 million/year.⁴ On a per kWh basis, this charge is equivalent to approximately 1.3 mills/kWh, about in the middle range of states with EE&RE public benefit funding. The intention in California was to “bid out” the administration of the programs; however, after encountering a variety of legal and administrative obstacles, the California Public Utilities Commission decided to allow the individual utilities to continue administering the programs through the initial 4-year authorization period.

California began its PGC EE&RE programs in 1998 and has implemented a variety of EE&RE approaches. Market transformation in particular has been emphasized, and in pursuit of that objective there are a number of statewide programs being coordinated among the major utilities. Electric energy efficiency PGC spending for 1999 totaled \$200 million, and this was estimated to generate annualized savings of 825 million kWh and 156MW offpeak demand, and produce net benefits of about \$140 million.

³Most states tied the implementation of their public benefits funding and programs to the start date for retail competition in the state.

⁴California also has natural gas energy efficiency programs funded through gas rates rather than a separate PGC, and the gas programs annually spend about \$43 million, save 14 million therms, and produce benefits in excess of program and customer costs.

With the passage of electricity industry restructuring legislation, the California legislature decided that four public-purpose activities (EE&RE, low-income services, and public interest R&D) would no longer necessarily be administered by investor-owned utilities, and authorized investor-owned utility distribution companies to collect about \$1.8 billion in funding between 1998 and 2001 for EE&RE, public interest RD&D, and low-income services. The CEC was given new authority to govern and administer funds for renewable energy and public interest R&D; the CPUC maintained authority to oversee energy efficiency and low-income service.

To implement the legislature's goals for energy efficiency, the CPUC created a nine-member independent advisory board, the California Board for Energy Efficiency (CBEE), which was charged with developing and overseeing a competitive process for selecting program administrators to manage the delivery of EE programs and services. The CBEE was also given the responsibility for recommending changes to existing policy guidelines and program rules in order to carry out the CPUC's market transformation objectives, in part by creating viable private-sector EE&RE industries. The CPUC's intent was to have an independent advisory board oversee energy-efficiency activities and develop public input processes that would ultimately reduce the CPUC's regulatory burden. The CPUC wanted to eliminate contentious and resource-intensive annual DSM earnings hearings and triennial program-approval proceedings. Because the issue of utility administration was so contentious, CPUC decided that program administrators would be selected competitively rather than continuing the utilities' monopoly franchise over ratepayer-funded EE programs.

Publicly owned utilities are also required to establish a non-bypassable public benefits charge to fund some or all of these activities. An additional \$500 million will be spent by these utilities during the four-year transition period; minimum funding levels are set relative to the lowest past expenditure level of the three large investor-owned utilities on a percentage-of-revenue basis.

Massachusetts

Massachusetts passed restructuring legislation in 1997, which included public benefits funding for EE, RE and low-income programs. In Massachusetts, the public benefit fund, which was initiated in 1998, is administered by distribution utilities in accordance with plans approved by state agencies. Energy efficiency programs include a mixture of traditional DSM programs operated by individual utilities and regional market transformation programs in which utilities from New England hire a single program contractor to serve the utility service areas.

In the first year of PBF operation, nearly 150,000 customers participated in direct PBF programs, spanning all customer classes. According to the Massachusetts Division of Energy Resources, energy efficiency programs reduced participating customer energy



use by 6-13 percent, saving customers \$19 million annually in electricity costs. Over the lifetime of these measures, benefits are projected to total \$265 million, exceeding the cost to achieve these savings by \$140 million. DOER estimated that the cost to conserve energy from those programs will be about 60 percent less than the cost to buy electricity over the life of these programs, and that the overall benefit-cost ratio of the energy efficiency programs is 1.8 to 1. The DOER also estimated that there will be substantial job creation benefits and environmental emissions reductions from the programs.

New York

The New York experience is especially relevant, since it is discussed in the New Jersey Hearings and CRA.

New York initiated its PBF in July 1998, and the program is administered by the New York State Energy Research and Development Authority (NYSERDA), a semi-independent organization established by the state government in 1975. NYSERDA developed a plan recommending 30 complementary EE programs addressing different sectors, measures, and market niches, and over the past several years, NYSERDA has been initiating these programs, which are run by independent contractors selected by NYSERDA through competitive solicitations. The programs fall into five categories: Energy efficiency, renewable energy, low-income, R&D, and environmental protection. Energy efficiency accounts for 70 percent of the budget and is divided into market transformation, standard performance contracting, and technical assistance programs.

More than 25 programs have become operational, and are projected to save consumers and businesses \$12.5 million annually, providing a 1.4 year payback. In addition, experience to date indicates that for each dollar NYSERDA invests, customers, energy service companies, and others are investing \$3, providing substantial leveraging of public funds. NYSERDA estimates that the programs already in operation will reduce energy bills by more than \$100 million annually and provide a 0.7 year payback on the public funds invested.

Rhode Island

In August 1996, the Rhode Island PUC and legislature authorized electric distribution companies to levy a charge of at least 2.3 mills per kWh for EE&RE, and \$17 million is being collected annually. However, the PUC decided to maintain the status quo for administration and governance of energy-efficiency programs by utilities, subject to PUC oversight. Utility implementation was supported by all parties because the utilities had a proven track record in successfully implementing programs and a history of working with nonutility service providers.

The mix of programs and designs will be determined by DSM collaboratives that involve major stakeholders, and regional coordination of EE activities (e.g., participation in NEEP) is being accomplished by a regulatory mandate that utilities participate. Interested parties negotiate a consensus package of activities that they jointly recommend to regulators. Such negotiated settlements can be time consuming but appear to work well when a state has multiple, knowledgeable interested parties, and negotiated settlements are generally only possible when all parties want to reach agreement and are willing to compromise. A statewide collaborative group has been established to administer the programs.

Pacific Northwest

The approach being taken in the Pacific Northwest (Idaho, Montana, Oregon, and Washington) is an interesting hybrid: A new institutional structure has been created for certain EE&RE activities that are considered to be most efficiently organized by markets (i.e., across state and utility boundaries), while utilities continue to administer activities that are thought to be most efficiently organized locally (e.g., low-income programs). Decisions regarding administration and implementation of EE&RE supported by a public benefits charge are based on the Comprehensive Review of Northwest Energy Systems, which made several recommendations. Specifically, the governors of the four states recommended that each state spend about three percent of revenues on public-purpose programs (EE, RE, RE-oriented R&D, and low-income services).

For energy efficiency, the Northwest Power Planning Council (NWPPC) recommended that 70 to 75 percent of the funds be targeted toward local efforts administered by local utilities and subject to regulatory oversight (for investor-owned utilities) or elected boards (for public utilities and cooperatives). NWPPC recommended that a nonprofit organization be created to focus on regional market transformation activities and, accordingly, in 1996, the Northwest Energy Efficiency Alliance was created as a nonprofit corporation with an 18-member board of directors, composed of representatives from investor-owned utilities, the Bonneville Power Administration, publicly owned utilities, NWPPC, and the public. The board of directors selects and approves funding for market transformation projects, reviews and evaluates results, and provides guidance to NEEA staff. With an annual budget of \$65 million, the NEEA has issued several solicitations for innovative market-transformation proposals. Of the four NWPPC states, thus far only Montana has enacted legislation creating an SBC. However, the BPA and six major investor-owned utilities in the region are contributing financially to the NEEA; funding from the IOUs is conditional upon regulatory approval for recovery of costs through rates.

Section VI

SBC Renewable Energy Programs

Thus far, 14 states have established SBC-funded renewable energy funds that are expected to collect about \$3.4 billion through 2011 for renewable energy -- see Table 5. While funding levels vary considerably by state, aggregate annual fund collection for renewable energy ranges from \$175 million to over \$250 million. The largest state fund is California's, but substantial funds also exist in Connecticut, Massachusetts, New Jersey, and New York.

Wind and photovoltaic (PV) generation are eligible for support from most of the funds and geothermal electricity is also eligible under many of the funds, but is primarily supported in the West. Landfill is eligible, especially in states that do not have an RPS to support near-market technologies. Fuel cells (using either renewable or nonrenewable fuels) are eligible in many funds, especially in states with limited wind and solar resources and difficult project siting constraints, such as those in the Northeast. Biomass power production is eligible in most states, although only several funds have thus far supported such projects; hydropower has been treated similarly. Finally, non-electrical renewable energy applications, such as geothermal heat pumps and daylighting, are eligible for funding in some states.

States are still in the early stages of obligating program funds. Thus far, 10 states (indicated in Table 6) have expended funds on renewable energy projects and programs, but even among these states only a few years of experience is available. While each state differs, and many states incorporate elements of each model to some degree, the 14 SBC-funded RE funds have been categorized into three models: Investment, project development, and industry and infrastructure development:

- The investment model uses low-interest loans, and near-equity and equity investments to support RE companies and projects. The funds in Connecticut, Massachusetts, and Pennsylvania employ some programs characteristic of the investment model, although each of these funds also has standard grant-based programs.
- The project development model uses financial incentives and capital grants to directly subsidize RE project installation. California is perhaps the best example of this approach, although other states, including New York, Montana, Rhode Island, Delaware and Illinois also follow this model.

Table 5
Renewable Energy Funding Levels and Program Duration

State	Approximate Annual Funding (\$ million)	\$ Per-Capita Annual Funding	\$ Per-MWh Funding	Funding Duration
CA	135	4.0	0.58	1998-2011
CT	15 – 30	4.4	0.50	2000-indefinite
DE	1 (maximum)	1.3	0.09	10/1999-indefinite
IL	5	0.4	0.04	1998-2007
MA	30 – 20	4.7	0.59	1998-indefinite
MT	2	2.2	0.20	1999-2005
NJ	30	3.6	0.43	2001-2008
NM	4	2.2	0.22	2007-indefinite
NY	6 - 14	0.7	0.11	7/1998 - 6/2006
OH	15 - 5 (portion of)	1.3	0.09	2001-2010
OR	8.6	2.5	0.17	3/2002 - 2/2011
PA	0.8 (portion of)	0.9	0.08	1999-indefinite
RI	2	1.9	0.28	1997-2006
WI	1 - 4.8	0.9	0.07	4/1999-indefinite

Source: Bolinger, Wiser, Milford, Stoddard, and Porter.

- The industry and infrastructure development model uses business development grants, marketing support programs, R&D grants, resource assessments, technical assistance, education, and demonstration projects to build RE industry infrastructure. Wisconsin's program is indicative of this approach, although other states have programs in these areas as well.

Table 6 summarizes the types of programs implemented thus far in the 10 states that have begun to distribute RE funds. Within the project development model, the most common type of program involves financial incentives for the development of new utility scale RE; the grants or production incentives provided under these programs are usually contingent on project success. Other states have provided earlier-stage funding as pre-development grants to specific projects, not contingent on project success. By-downs and competitive solicitations are being used to subsidize distributed generation projects (often PV), and three states have developed consumer financing products to augment these programs. California is the only state that provides support to existing resources, although Illinois is funding the refurbishment of existing small hydro facilities. Project or company financing has been thus far been used by two states.

Table 6
Renewable Energy Programmatic Activities

Model/Program Type	CA	CT	IL	MA	MT	NJ	NY	PA	RI	WI
Project Development										
Financial incentives for large- scale projects	•		•		•		•	•	•	•
Predevelopment grants for specific projects				•					•	
Support for existing projects	•									
Distributed generation buy-downs	•		•			•	•	•	•	
Distributed generation Competitive solicitations		•		•	•		•		•	•
Consumer financing programs							•	•		•
Investment										
Project or company financing		•						•		
Industry and Infrastructure development										
Detailed resource assessment							•		•	
Business development grants							•	•		•
Broad-based customer Education	•							•		•
Support for green power Marketing	•	•		•			•	•	•	

Source: Bolinger, Wiser, Milford, Stoddard, and Porter.

Within the industry and infrastructure development model, a variety of activities, including resource assessments and business development grants, have been common. While other states have provided limited customer education, thus far only California and Wisconsin have devoted significant resources to broad-based customer education activities. Six states have directly supported the green power market in a variety of ways, and other states have also developed some guidelines for the types of programs they will offer. Delaware is developing a rebate program for PV and solar hot water/space heating that is expected to be operational in 2002. While the inception of

New Mexico's fund has been delayed until 2007, the state plans to provide grants to public schools, local governments, and Native American communities to support the installation of RE systems. Ohio's SBC fund is scheduled to provide low-interest loans in partnership with local banks to residential and commercial renewable energy projects by 2002, and in Oregon, a nonprofit administrator is working on a strategic plan in preparation for the inception of funding, scheduled to begin in March 2002.

Thus far, the most visible funding successes have come from the development of large-scale renewable energy projects. Table 7 summarizes the program design used by and results from each of the five states that have support large-scale projects. As shown, a total of \$265 million, the majority of which comes from California, has been obligated under these programs to new RE projects. While many of these projects have not yet come on line, and some (perhaps many) may never be developed, a total of 1,464 MW could be installed if all projects that have been obligated funds were to come on line. Wind power has been the most favored technology with nearly 1,130 MW of possible installation, followed by geothermal in California with 157 MW, and landfill gas with 101 MW. Biomass and hydropower have made lesser contributions. Programs have used a mix of financial incentive structures, from standard grants to production incentives, but all incentives, with the exception of those in Illinois, have been distributed after competitive solicitation processes. Incentive levels vary dramatically by state and technology supported, from a low of 0.11 cents/kWh to a high of 6.75 cents/kWh.⁵

Customer-sited distributed generation programs, including buy-downs, competitive solicitations, and consumer financing programs, have also been funded, and Table 8 summarizes the funding approaches utilized. Most target customer-sited PV, with lesser emphasis on small wind, fuel cells, and other technologies. In aggregate, approximately 30 MW of distributed generation capacity has been developed thus far or is likely to be installed shortly under these programs.

⁵Because incentive structures differ by state, to allow comparison all incentives have been normalized by researchers to their five-year production incentive equivalent assuming a 10 percent discount rate.

Table 7
State SBC Funding of Large-Scale Renewable Projects

State	Form of Fund distribution	Level of Funding (\$ million)	Results^a	Discounted Cents/kWh Incentive over Five Years^b
CA	Five-year production incentive	162	543 MW (assorted)	1.20
		40	471 MW (assorted)	0.59
		40	300 MW (assorted)	0.75
IL	Grant	0 .55	3 MW landfill gas	0.57
		1	3 MW hydro	1.86
		0 .352	1.2 MW hydro	1.63
		0 .55	15 MW landfill gas	0.11
MT	Three-year production incentive	1 .5	3 MW wind	3.63
NY	Grants with performance guarantees	9	52 MW wind	1.95
		4	6.6 MW wind	6.75
PA	Grant/production incentive	6	67 MW wind	1.00

^aThese results are projected and are based on announced results of solicitations; only a fraction of the projects obligated funds are yet on line.

^bBecause incentive structures differ by state, to allow comparison all incentives are normalized to their five-year-production incentive equivalent assuming a 10 percent discount rate.

Source: Bolinger, Wiser, Milford, Stoddard, and Porter.

Table 8
Current State Funding for Distributed Generation

State	Form of Fund Distribution
CA	\$4.50/W to 50% of total cost.
CT	Equity investments in distributed generation companies and grants for fuel cell installations
IL	\$6/W to 60% of total cost (PV); 50% of total cost (up to \$300,000) for wind > 10 kW.
MA	Predevelopment grants for analysis of premium power applications; 25% cost buy-down for DG used in premium power applications
MT	Solicitations for PV and wind installations
NJ	\$5/W (<10kW), \$4/@ (10-100 kW), and \$3/W (>100 kW), all to 60% of total cost
NY (NYSERDA)	Competitive solicitations for commercial PV installations, for PV manufacturers to develop distribution channels that enable them to better reach residential customers, and for “high-value” DG installations; low interest consumer loan program
NY (LIPA)	\$3/W to 30% of total cost (PV only), marketed with loan rate buy-down and state tax credit
PA (PECO)	1 st installment; \$3/W up to \$6,000 (to PV owner); 2 nd installment (after 1 year); \$1/kWh generated in first year up to 42,000 (to PV owner), and \$0.10/kWh generated in first year up to \$250 per system (to PV Installer); no-hassle consumer and commercial loans.
RI	\$3/W (PV) and 41.5/W (small wind) to 50% of total cost
WI	Low-interest loans, interest rate buy-downs, production rewards

Source: Bolinger, Wiser, Milford, Stoddard, and Porter.

Section VII

Implications for New Jersey of the Experiences of Other States

Review of the experiences of other states indicates some important lessons learned.

The idea of obtaining an estimate of the average administrative costs among the states for the SBC programs is meaningless:

- First, the programs differ so widely in terms of definition, scope, coverage, technology, program type, duration, funding, and other determining characteristics that any single estimate would be misleading, at best.
- Second, the states define different program aspects as “administration,” including, in some cases, evaluation, analysis, planning, some marketing efforts, etc.
- Third, most states’ programs are just getting started, and this distorts any estimate of administrative costs -- one would expect the administrative costs (however defined) of new initiatives to be higher at the beginning.
- Fourth, states sometimes contract out some of the “administrative” functions, thus distorting administrative cost estimates.
- Fifth, even the empirical estimates that are available vary widely. For example, in Connecticut, the legislation specifies that administrative costs cannot exceed five percent; in Wisconsin, no decision has yet been made as to the allowable level of administrative costs; in Vermont, administrative costs for 2000 were reported to total 27 percent; in Oregon, administrative costs are capped at 20 percent; In New York, administrative costs are capped at seven percent, with an additional two percent allocated for evaluation; in Texas, administrative costs cannot exceed five percent; in Montana, administrative costs in 2000 were reported as totaling seven percent; and so forth. However, the salient point is that most of the states have no precise estimate of “administrative costs.”

- Finally, and perhaps most important, the most widely used administrative structure (employed in nine of the 23 states) is state agency administration. However, any estimate of administrative costs by a state agency is especially meaningless because these agencies are unable to precisely account for time in cases where direct and administrative staff resources are shared between departments. The problem is further compounded by differences in how departments determine if shared time should be charged as a direct cost item or to the general administration budget.

There are widespread problems in the implementation of RE programs in many states:

- Some states do not have any specific RE programs.
- The definition of what constitutes an RE program differs widely in the states that do have RE programs.
- Some RE programs include things such as used tires (California and Maine) and solid wastes (a number of states) that environmentalists and RE advocates abhor.
- Fuel cells are included as RE programs in many states, but these may not even be RE programs.
- Illinois includes a Coal Technology Development Fund along with its SBC EE&RE programs
- In general, while opinions are mixed in many states over the feasibility of having utilities administer SBC EE programs, there appears to be widespread concern over having utilities administer the RE programs, due to utilities' potential conflict of interest and to their less-than-stellar historical record with these programs.

Net metering is of critical importance to the success of EE&RE programs, but the states do not fully appreciate this:

- Fourteen states have net metering requirements: Connecticut, Delaware, D.C., Maine, Massachusetts, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Rhode Island, and Vermont.

- Eight states have no net metering: Arizona, California, Illinois, Montana, Pennsylvania, Texas, West Virginia, and Wisconsin -- but all of these states, except for Texas and West Virginia, have SBC RE programs.
- One state, Maryland, has net metering only for rooftop PV.
- Further, the states with net metering have different rules concerning the cap on volume with respect to total utility sales, qualifying facilities and technologies, maximum facility size, etc.

While market transformation is a desired, articulated goal in most of the states, it is, at best, imperfectly understood:

- Many of the states' program staff feel that market transformation is too sophisticated a concept for them, and they prefer concentrating instead on straightforward legacy programs such as EE&RE education, outreach, green energy, etc. which they understand
- They feel that they can more easily measure the results of traditional programs such as rebates and direct buys, and, importantly, can demonstrate the desired quantitative results. They then use these programs as evidence of their desire to transform markets.
- They fear that the results of MT programs are long term (which is true), whereas they are concerned with immediate and short term results upon which their superiors and regulators judge them.
- Finally, some of them admit that they simply do not understand what is meant by market transformation.

States do not have comprehensive, integrated market transformation programs:

- As noted, many states are not familiar with the term or its requirements
- At least as important, there is little attempt to integrate and coordinate other relevant state programs relating to EE&RE. Even in states with active SBC EE&RE programs, there is only uncoordinated and haphazard attempts to enact supporting state policies such as tax incentives, government buys, R&D programs,

direct subsidies, demonstration programs, property and sales tax waivers, green power programs, interconnect mandates, net metering, etc.

Further:

- As noted, only 14 of the 23 states have net metering legislation
- Only ten of the states have EE&RE R&D programs
- Only 11 of the states have an RPS
- The levels of the SBCs vary enormously, from 0.25 mills/kWh to 4.5 mills/kWh

While there is much lip service given to the importance of goals such as market transformation, environmental enhancement, renewable energy, etc., the actual primary goal in most of the states is to lower rates.

The recent California energy crisis was a severe setback for utility restructuring and SBC programs in many of the states, and the fallout from California is yet to be fully felt.

The states are divided over whether restructuring and consumer choice will increase or decrease rates:

- Most states (at least prior to the problems in California) assumed that restructuring would reduce rates
- A number of states mandated rate decreases.
- On the other hand, even before California, some states, such as Maine and Wisconsin, feared that restructuring would increase rates.
- In Connecticut, the expressed hope is that restructuring will at least reduce the rate of increase.
- The Pennsylvania law required the PUC to set a rate cap, not a reduction.

In most states, low income programs are not administered by utilities, ISAs, or hybrids or collaboratives; rather they are administered by the appropriate state agencies having experience with such programs and the relevant target populations. For example:

- In Delaware, LI programs are being administered by the state Department of Health and Human Services.
- In the District of Columbia, LI programs are being administered by the Office of Energy.
- In Illinois, LI programs are being administered by the state Department of Commerce and Community Affairs.
- In Maryland, LI programs are being administered by the state Department of Human Resources.
- In Montana, LI programs are being administered by the state Department of Public Health and Human Services.
- In New Hampshire, LI programs are being administered by the state's Community Action Agencies.
- In Ohio, LI programs are being administered by the state Director of Development.
- In Oregon, LI programs are being administered by the state Housing and Community Services Department.
- In West Virginia, LI programs are being administered by the Governor's Office of Economic Opportunity.
- In Wisconsin, the state Department of Administration is contracting with community action agencies, nonprofit organizations, and local governments to administer the LI programs.